

*This manual must be kept with the appliance*  
Part No E835

October 2010

# FASTflo

## Installation Design Guide

Continuous Flow Wall Hung Balanced Flue  
Water Heaters for Natural Gas and Propane

WH42, WH56, WHX56, LWH56, WHX56, LWHX56



Working towards  
a cleaner future





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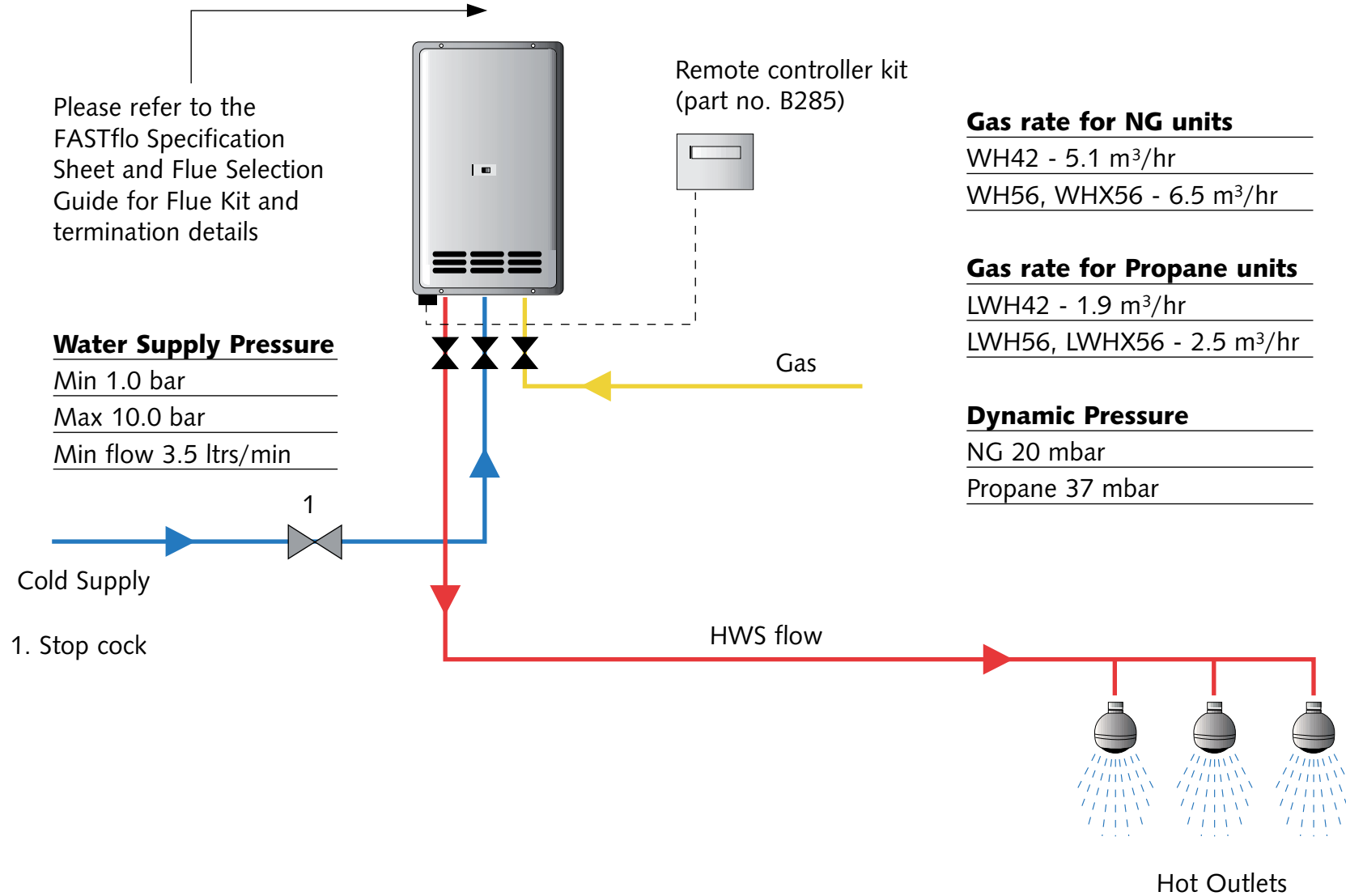
## Andrews Installation Design Guide for WH and WHX Model Water Heaters

**Fig No. DESCRIPTION**

|           |  |
|-----------|--|
| <b>1</b>  | Typical Installation - Single Heater   |
| <b>2</b>  | Typical Installation - Single Heater with Secondary Return   |
| <b>3</b>  | Typical Installation - Two Heaters   |
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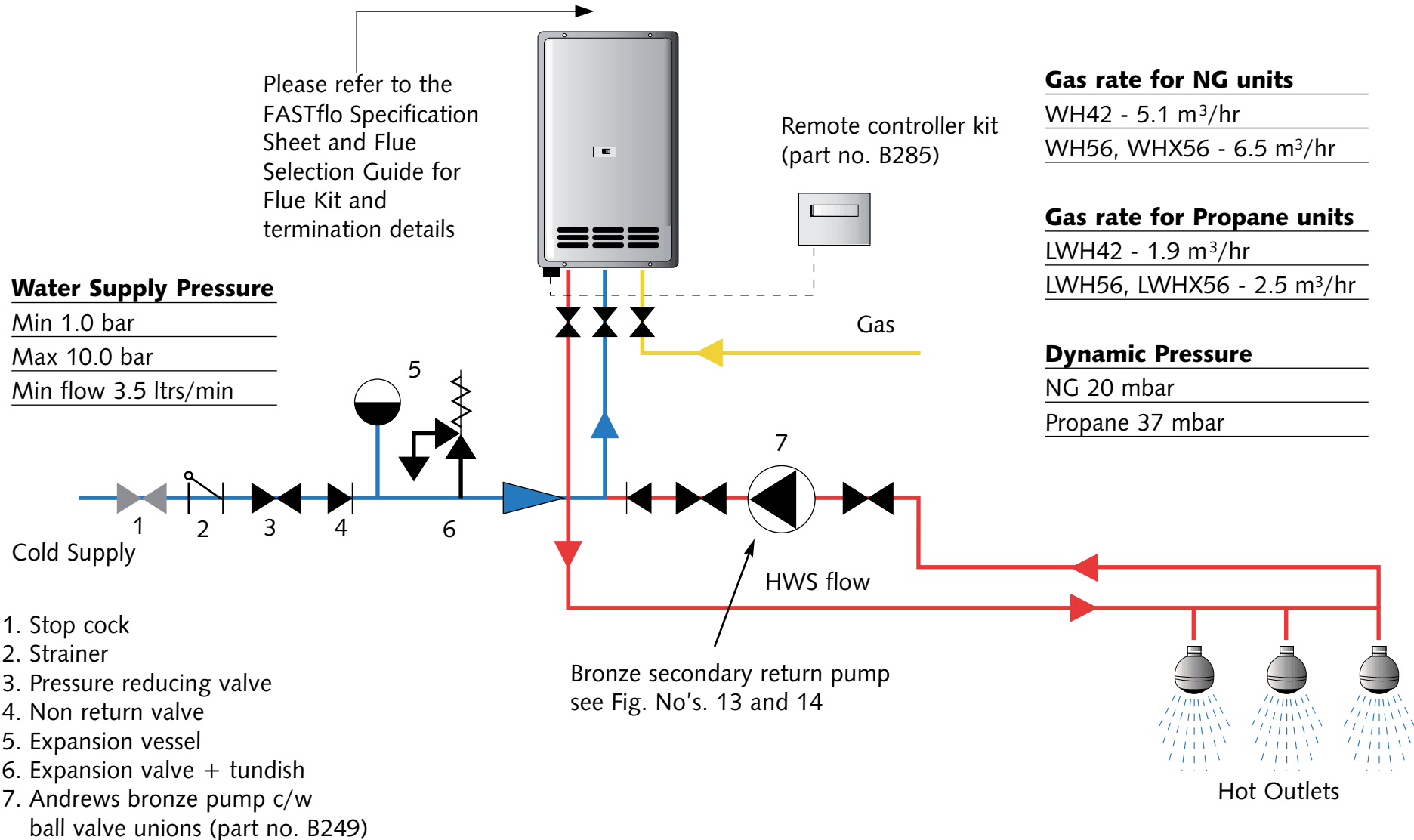
# Fig No.1

## Andrews WH and WHX Single Water Heater Installation Without Secondary Return



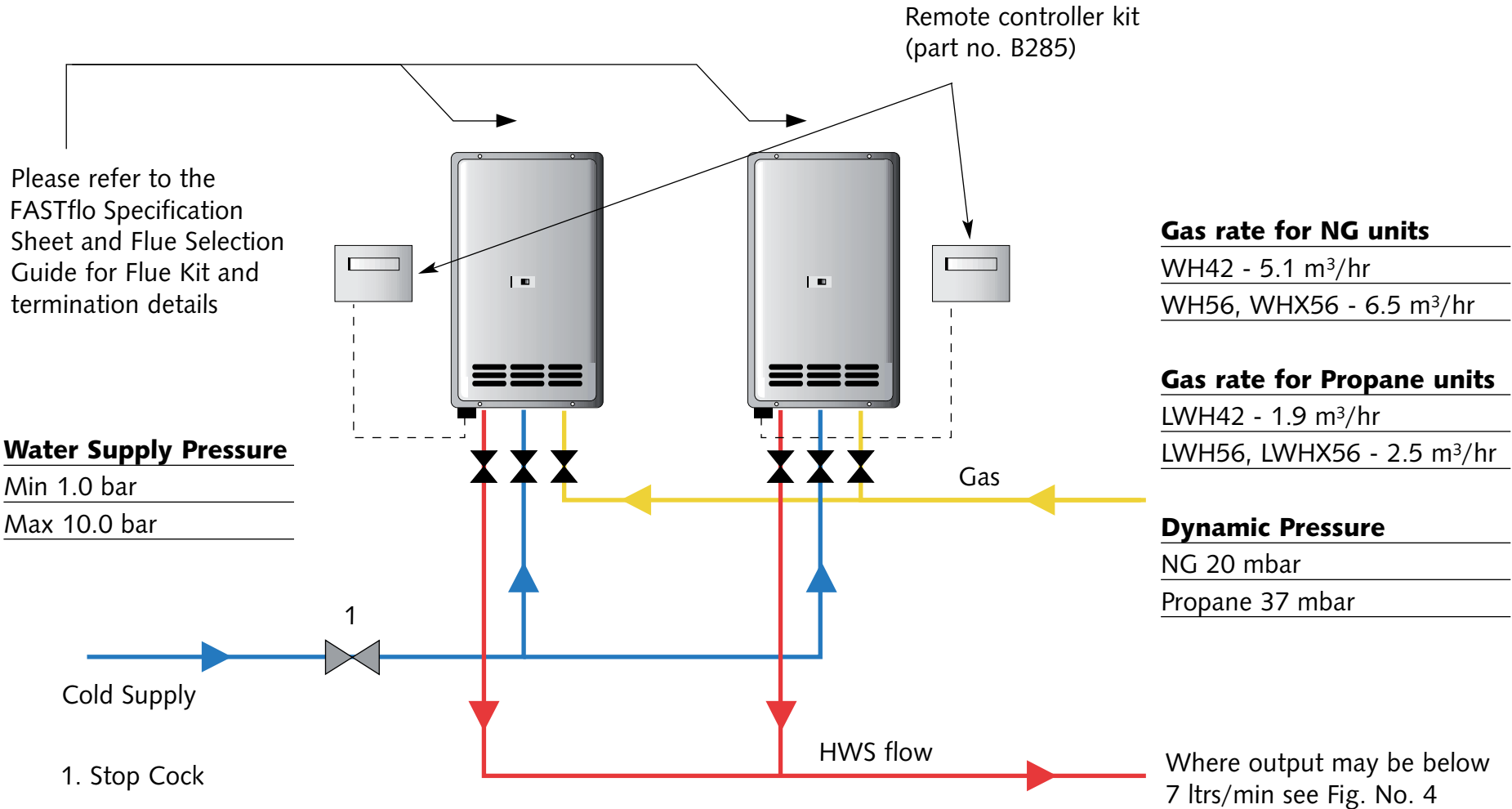
## Fig No.2

### Andrews WH and WHX Single Water Heater Installation with Secondary Return



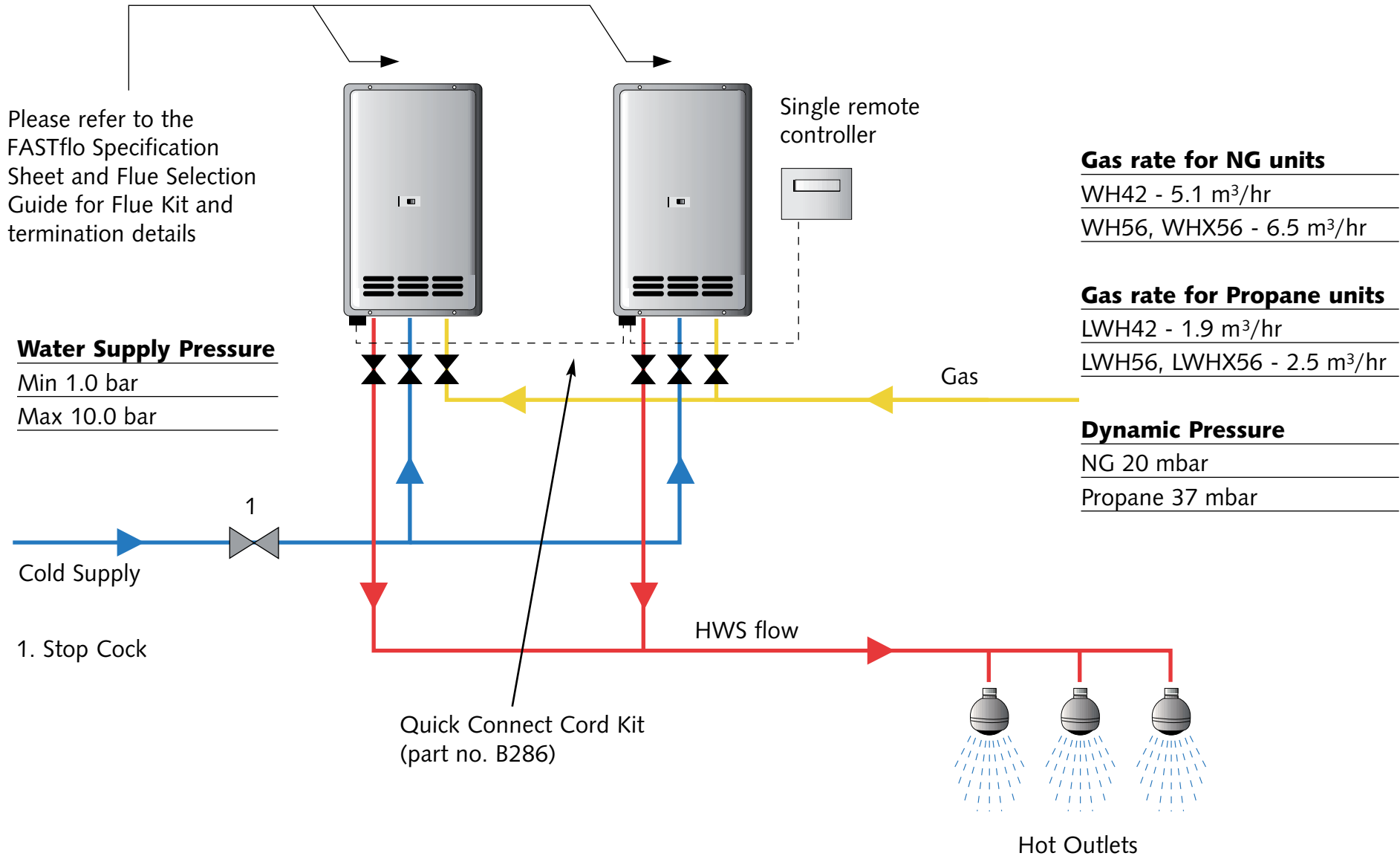
**Fig No.3**

**Andrews WH and WHX Multiple Water Heater Installation without Secondary Return**



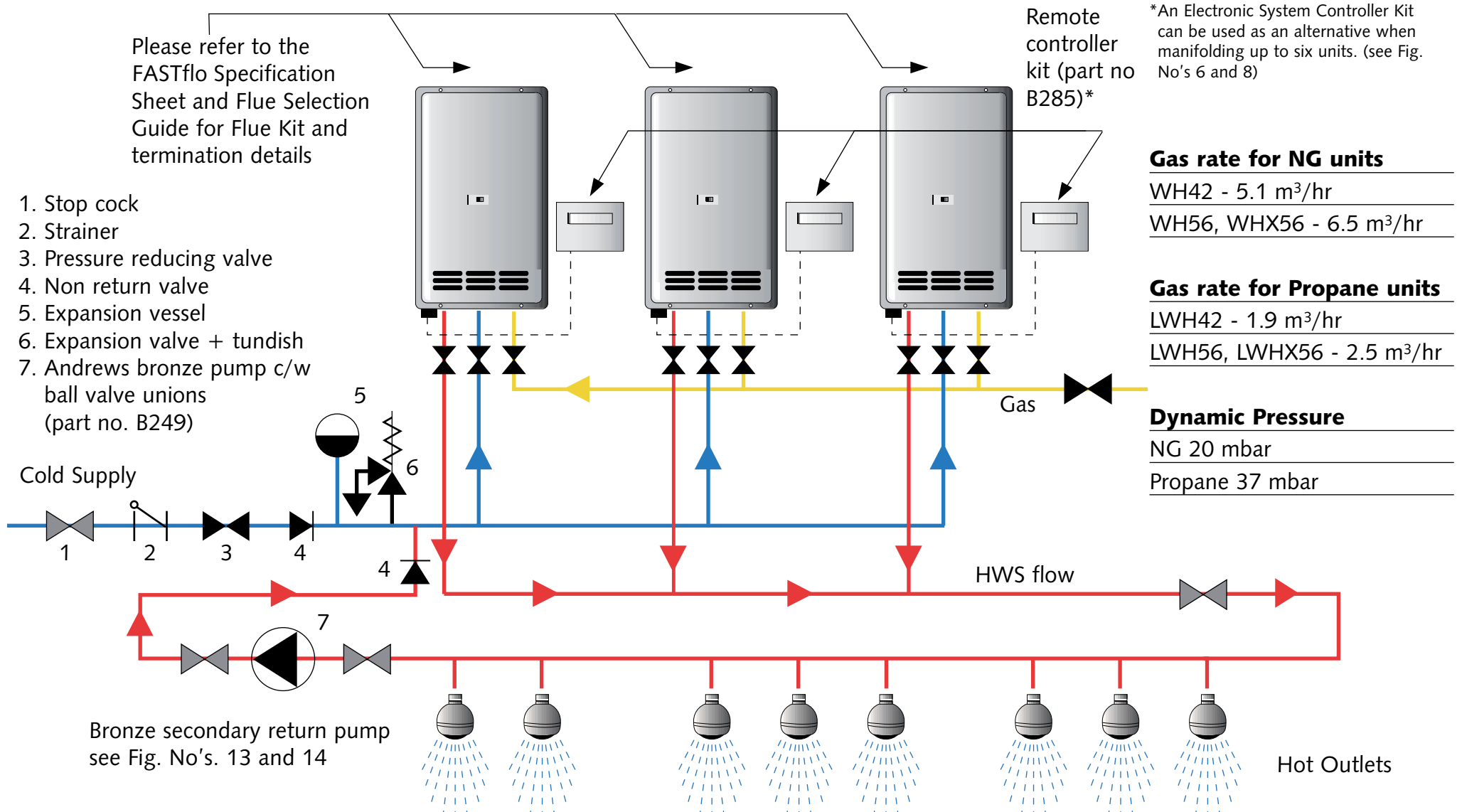
**Fig No.4**

**Andrews WH and WHX Multiple Water Heater Installation with Quick Connect Cord Kit**



# Fig No.5

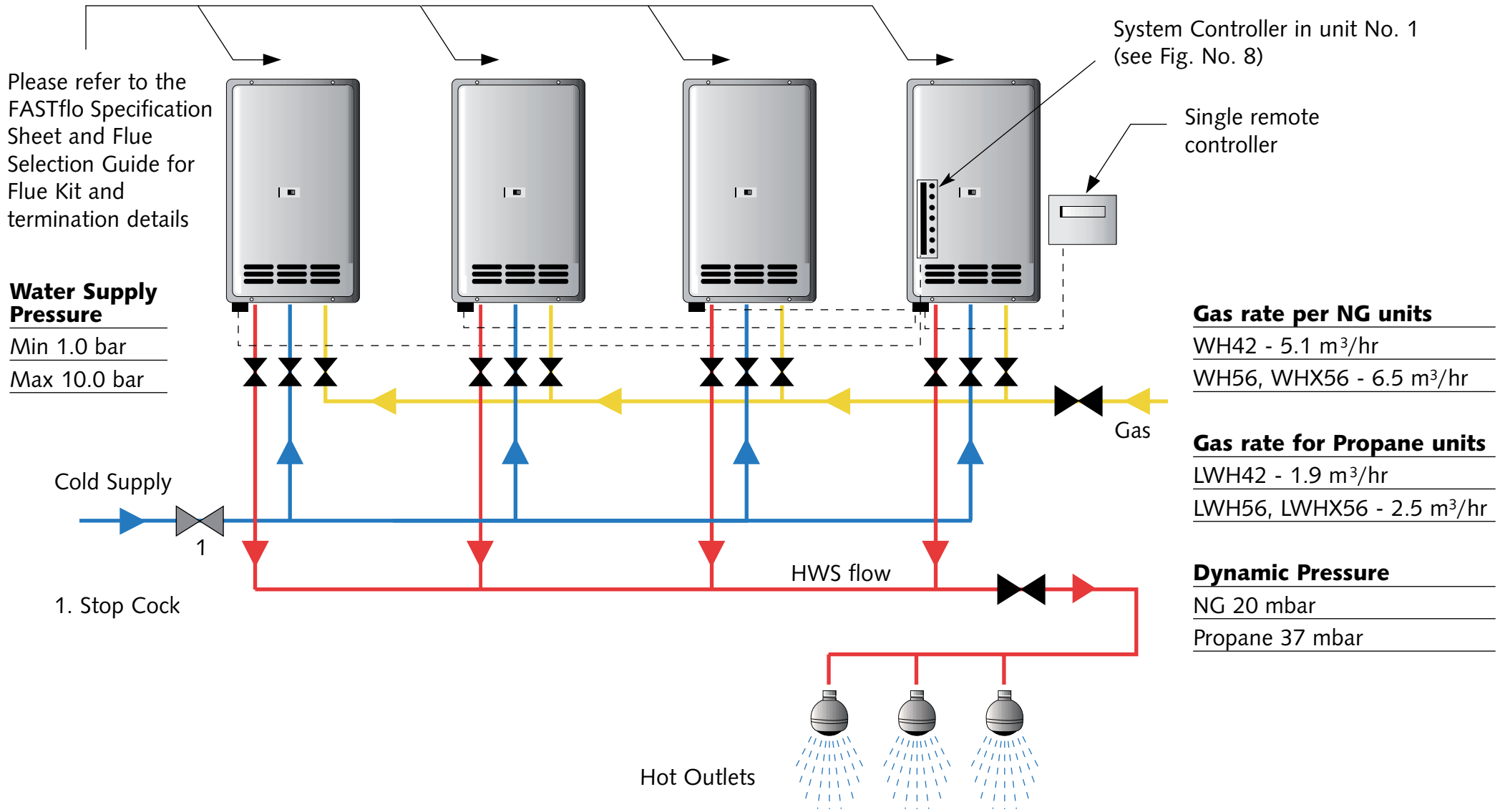
## Andrews WH and WHX Multiple Water Heater Installation with Secondary Return





**Fig No.6**

**Andrews WH56 and WHX56 Multiple Water Heater Installation with System Controller Kit**



## Fig No.7

### Andrews WH and WHX Water Flow Rates

#### Performance Chart

Water flow  
at different  
temperature  
rises

| Andrews Model Reference | Temperature Rise 25°C |       | Temperature Rise 35°C |       | Temperature Rise 45°C |       | Temperature Rise 55°C |       | Temperature Rise 65°C |       | Temperature Rise 75°C |       |
|-------------------------|-----------------------|-------|-----------------------|-------|-----------------------|-------|-----------------------|-------|-----------------------|-------|-----------------------|-------|
|                         | L sec                 | L min | L sec                 | L min | L sec                 | L min | L sec                 | L min | L sec                 | L min | L sec                 | L min |
| WH42,LWH42              | 0.40                  | 24.0  | 0.29                  | 17.4  | 0.22                  | 13.2  | 0.18                  | 10.8  | 0.15                  | 9.2   | 0.13                  | 8.0   |
| WH56, LWH56             | 0.53                  | 31.8  | 0.38                  | 22.8  | 0.30                  | 18.0  | 0.24                  | 14.4  | 0.20                  | 12.3  | 0.18                  | 10.6  |
| WHX56,LWHX56            | 0.53                  | 31.8  | 0.38                  | 22.8  | 0.30                  | 18.0  | 0.24                  | 14.4  | 0.20                  | 12.3  | 0.18                  | 10.6  |

The flow rate will vary dependant upon the temperature selected at outlet and the incoming water temperature. The flow rate can be calculated using the following formula or by reference to the charts above.

WH42, LWH42 = 42 kW output  
 WH56, LWH56 = 55.8kW output  
 WHX56, LWHX56 = 55.8 kW output

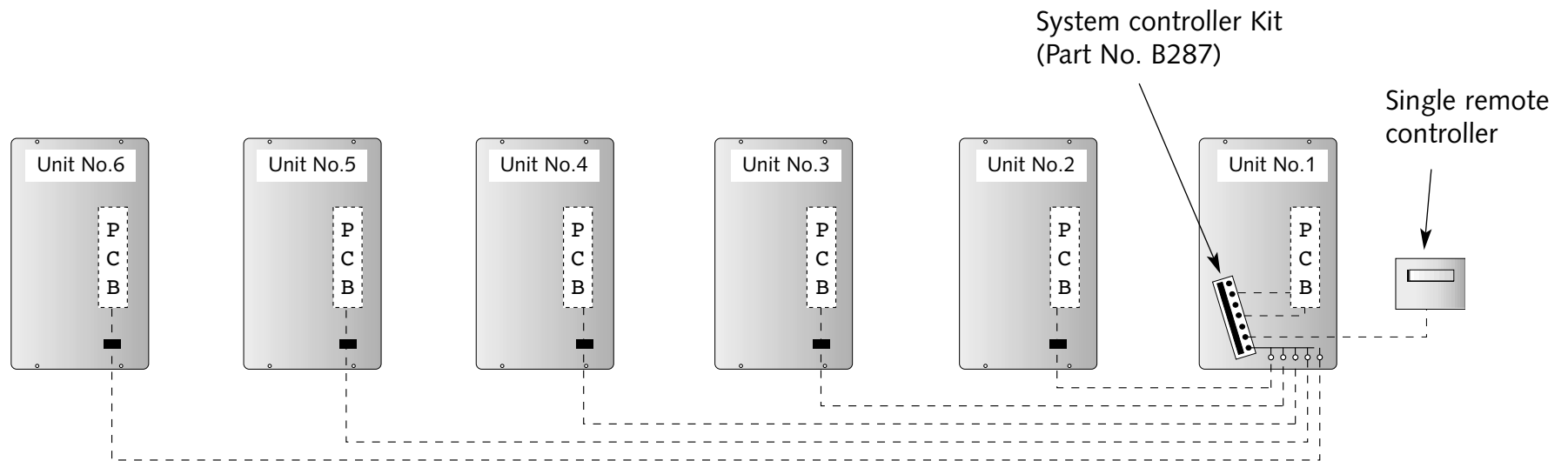
$$\text{Flow rate L/S} = \frac{(\text{heater output}) \text{ kW}}{\Delta t (\text{temperature rise}) \times 4.2 \text{ specific heat}}$$

In addition to the above the maximum flow through each heater is pre-set independent of temperature, maximum flow rate for the WH42 is 24 L/min and maximum flow rate for the WH56 and WHX56 is 31.8 L/min.

## Fig No.8

### Andrews System Controller Kit (Part No. B287) for WH56, LWH56, WHX56

The System Controller Kit can be used as an alternative to the Quick Connect Cord Kit (two unit installation) or for controlling up to six manifolded water heaters. The master unit (No.1) contains the System Controller module and includes plug connectors to enable the control cords from the other units to be connected up to the master unit. In addition the System Controller incorporates the following standard features, BEMS fault indication, Remote 'Power On' indication, Primary Pump connection via cylinder thermostat, Secondary Circulation Pump connection and Remote Switching. A comprehensive installation manual is available from our sales department.



### Typical installation

#### System operation

The control panel randomly selects some heaters at the ready stage and some at the standby stage, and heaters will start dependent upon water flow and temperature settings. The system rotates the lead and standby units after every eight hours operating time. As the flow rates increases additional units will fire thus maintaining the required system flow temperature. The remote controller must be connected to Unit No. 1 and temperature settings on this controller will be communicated to the other manifolded heaters on the system. The System Controller is not required when the installation incorporates a storage cylinder/ buffer vessel or if a constant large volume of hot water is required.

## Fig No.9

### Andrews WH & WHX Unvented System Kits

If continuous flow water heaters are used on circulation systems or linked to a storage cylinder/buffer vessel an unvented system kit is required to allow for expansion of the hot water system. The kit includes the necessary safety devices required to conform to the current building regulations.

Three sizes of kit can be supplied and each contains a combined strainer/pressure reducing valve set to 3.5 bar, check valve, expansion valve set to 6.0 bar, tundish, 5 litre expansion vessel, wall bracket and hose.

When the system includes a storage cylinder/buffer vessel, a combined temperature/pressure relief valve must be sized to suit the total input of all the water heaters installed (see table below).

This valve must be located at the top of the storage unit (see Fig. No. 10). In addition the size of the expansion vessel must also be increased to suit both the storage cylinder plus the contents of the system pipework (see expansion vessel table).

#### Unvented System Kit

| Part No. | Size                     |
|----------|--------------------------|
| B235     | $\frac{3}{4}$ inch dia.  |
| B234     | 1 inch dia.              |
| B276     | $1\frac{1}{4}$ inch dia. |

#### Expansion Vessel

| Part No. | Size              |
|----------|-------------------|
| C782     | 25 litre, 3.5 bar |
| C789     | 40 litre, 3.5 bar |
| E047     | 60 litre, 3.5 bar |
| C890     | 80 litre, 3.5 bar |

#### Temperature and pressure Relief Valves

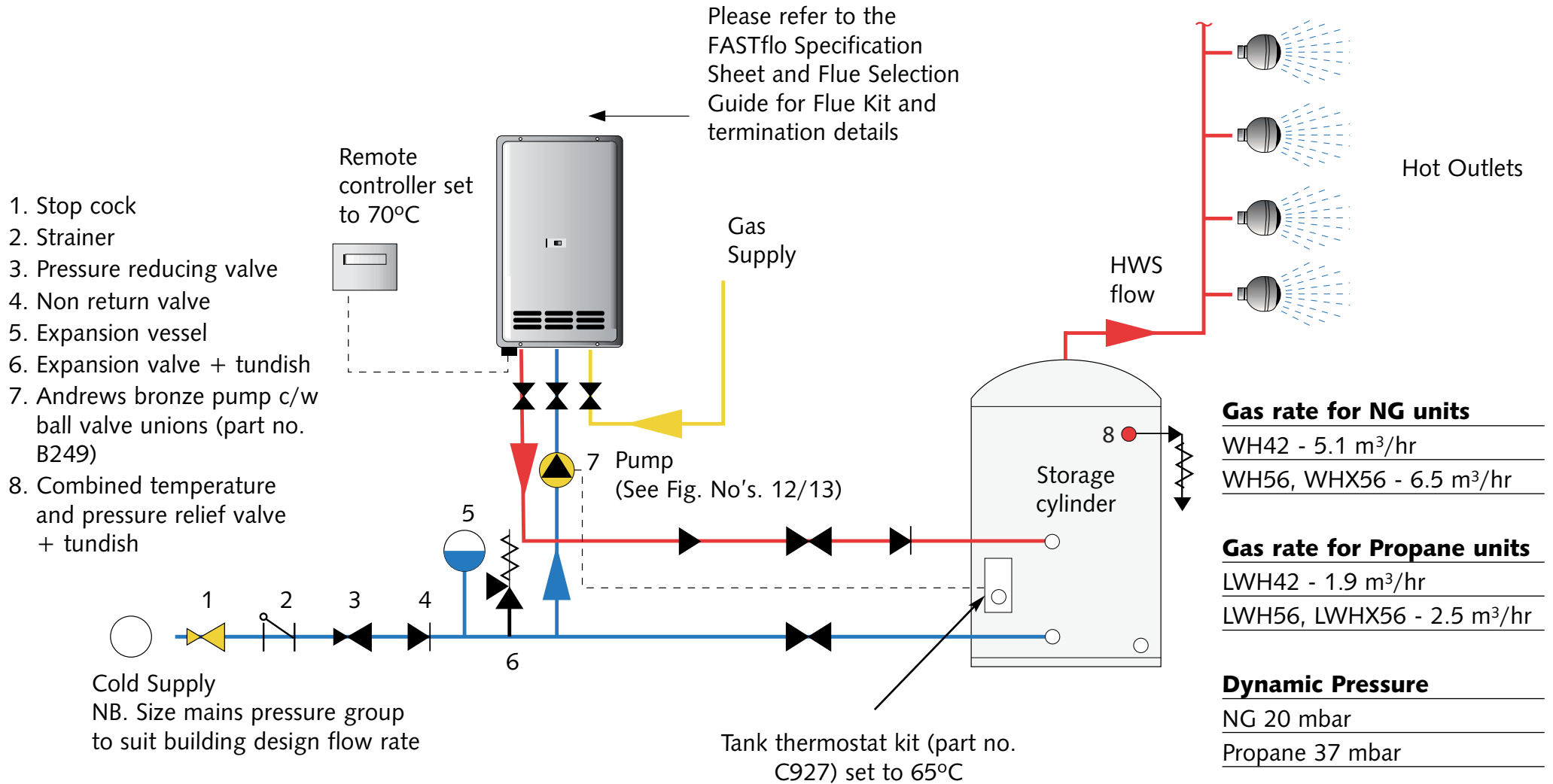
| Part No.         | Total Output | Quantity & Size of Valves                        |
|------------------|--------------|--|
| <b>C380</b>      | Up to 56kw   | 1 x 1 inch                                       |
| <b>E242</b>      | Up to 112kw  | 1 x $1\frac{1}{2}$ inch                          |
| <b>E242+C456</b> | Up to 126kw  | 1 x $1\frac{1}{2}$ inch + 1 x $\frac{3}{4}$ inch |
| <b>E291</b>      | Up to 168kw  | 1 x 2 inch                                       |
| <b>E291+C380</b> | Up to 224kw  | 1 x 2 inch + 1 x 1 inch                          |

#### Tundishes

| Part No.         | Size  |
|------------------|---|
| <b>C384</b>      | 1 inch - $1\frac{1}{4}$ inch                                |
| <b>E326</b>      | 1 $\frac{1}{2}$ inch - 2 inch                               |
| <b>E497</b>      | 2 inch - $2\frac{1}{2}$ inch                                |
| <b>E497</b>      | 2 inch - $2\frac{1}{2}$ inch                                |
| <b>E497+C384</b> | 2 inch - $2\frac{1}{2}$ inch + 1 inch - $1\frac{1}{4}$ inch |

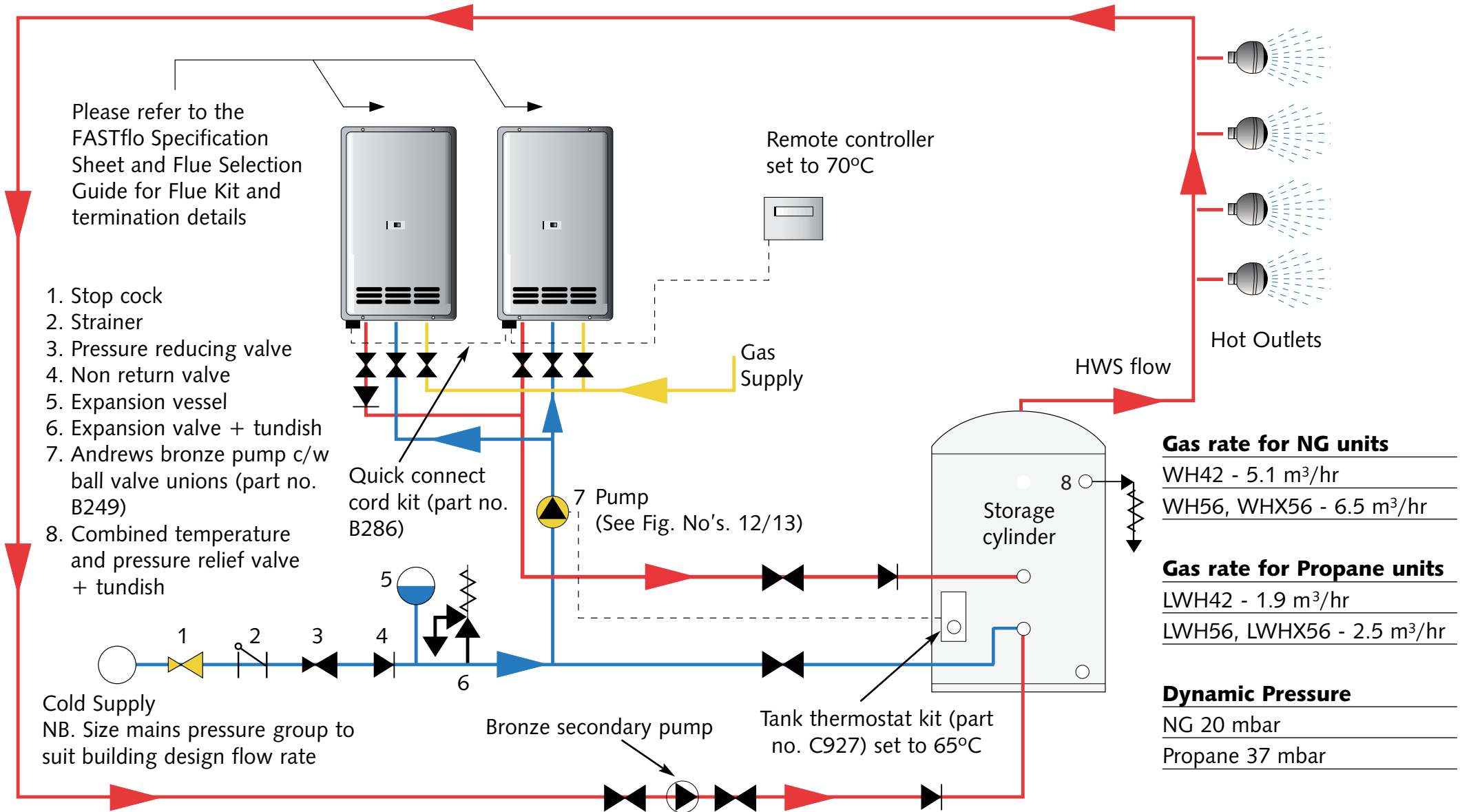
**Fig No.10**

**Andrews WH and WHX Single Water Heater Installation with ST Range Storage Cylinder**



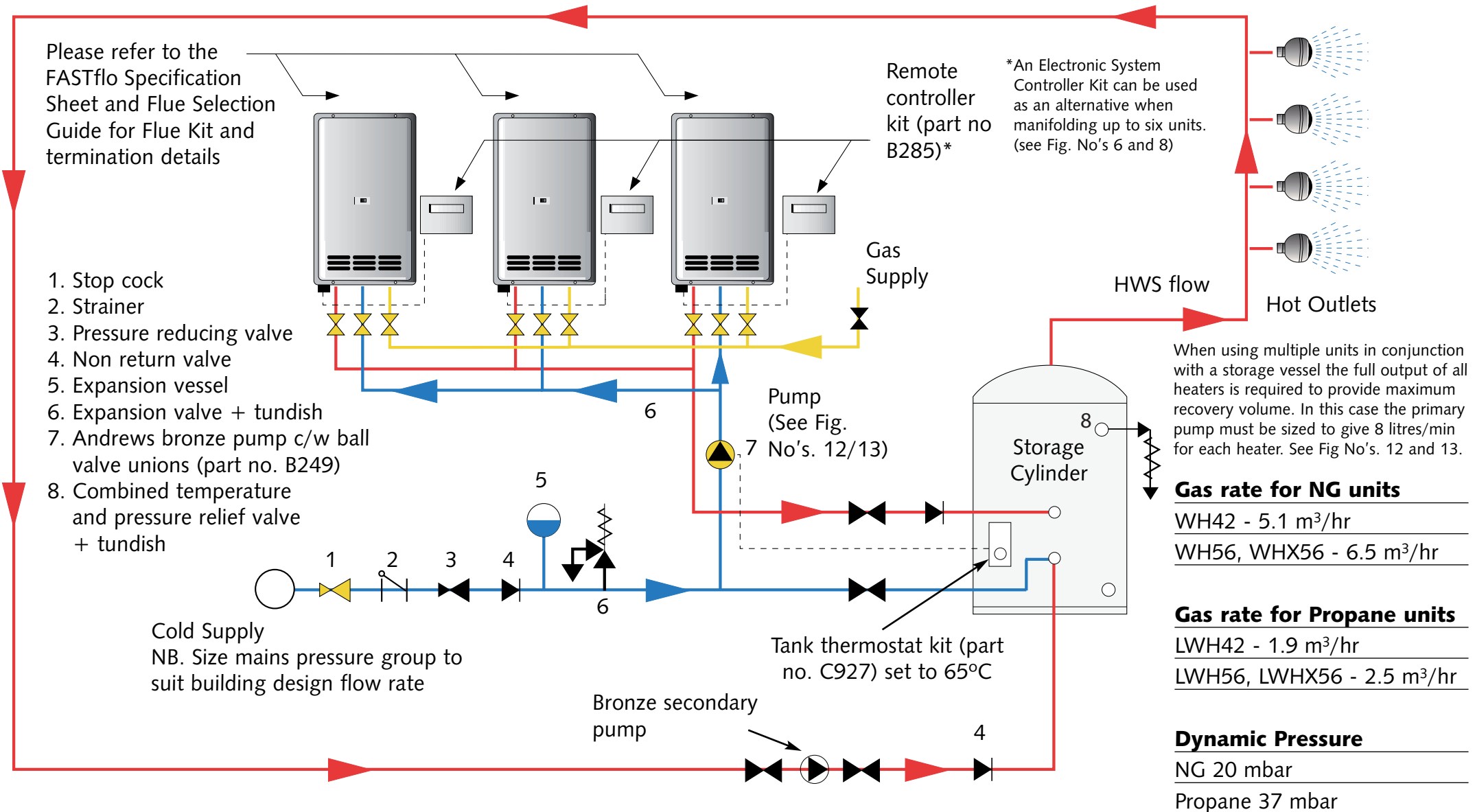
**Fig No.11**

**Andrews WH and WHX Multiple Water Heater Installation with ST Range Storage Cylinder, Quick Connect Cord Kit and Secondary Return**



**Fig No.12**

**Andrews WH and WHX Multiple Water Heater Installation with ST Range Storage Cylinder and Secondary Return**



## Fig No.13

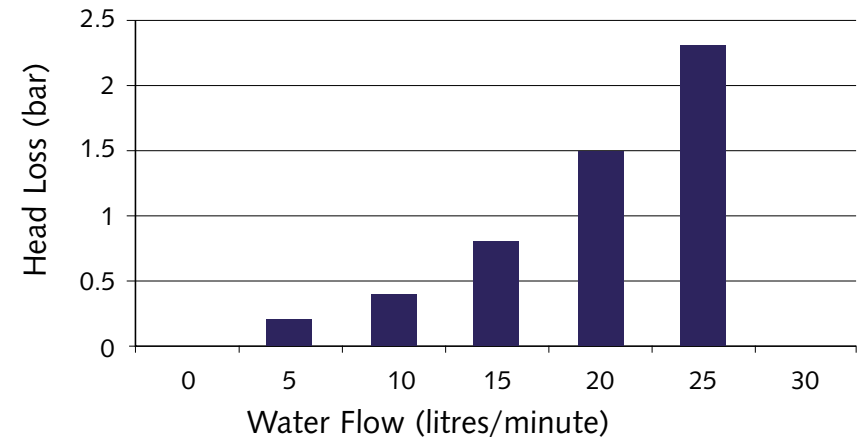
### Flow Rate Head Loss and Pump Sizing

The WH and WHX units will operate within a water inlet pressure range from 1.0 bar to 10.0 bar.

When a pump is used with a storage system or for secondary return circulation only bronze or stainless steel pumps must be used.

The pump must be sized to give a minimum flow rate of 8 L/min through each heater.

The head loss through the FASTflo range of products is due to the friction generated when the water flows through the heat exchanger and associated components.



#### Pump Selection using multiple heaters (pump required for first unit only)

| Number of units | Flow rate required   | Approximate head | Speed setting |
|-----------------|----------------------|------------------|---------------|
| 1               | 8 l/min - 0.13 l/sec | 50 kPa           | 2             |

#### Pump selection using multiple heaters (flow through all units)

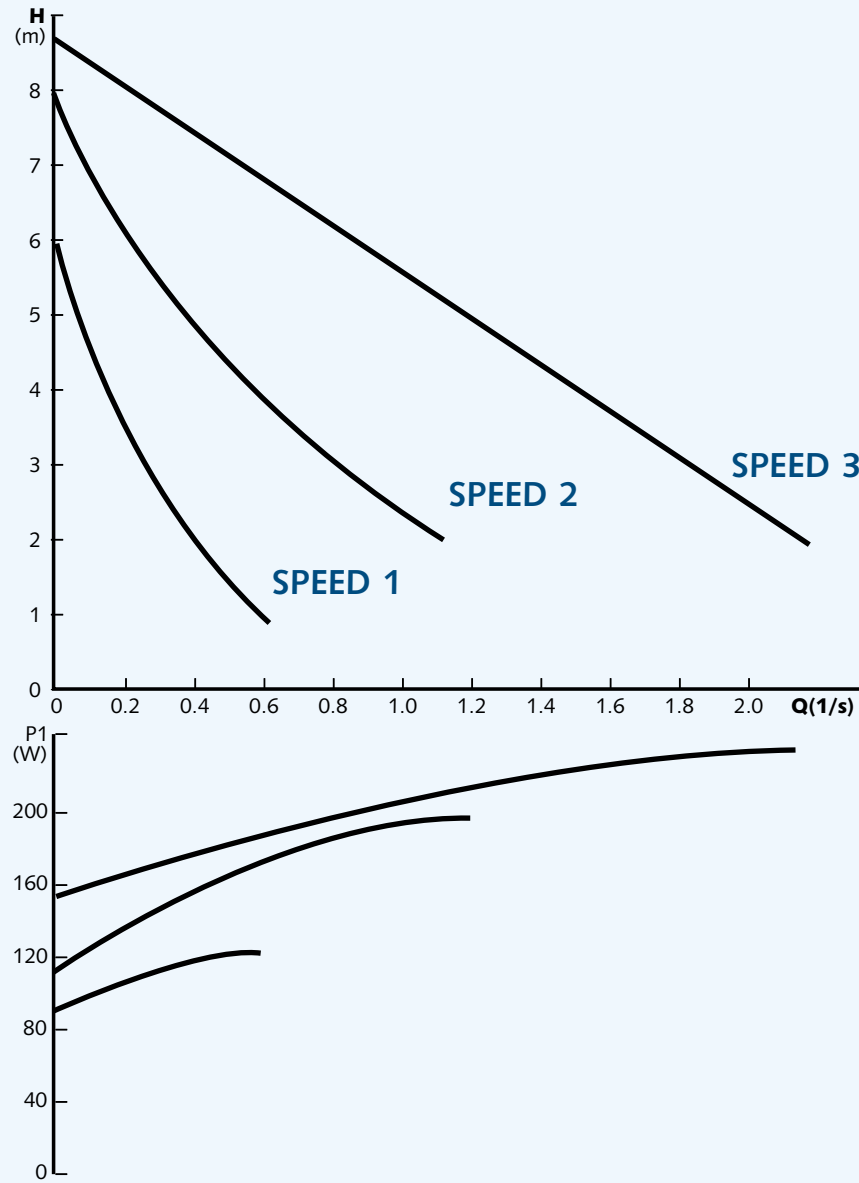
|   |                       |        |   |
|---|-----------------------|--------|---|
| 2 | 16 l/min - 0.27 l/sec | 50 kPa | 2 |
| 3 | 24 l/min - 0.40 l/sec | 60 kPa | 3 |
| 4 | 32 l/min - 0.53 l/sec | 60 kPa | 3 |
| 5 | 48 l/min - 0.67 l/sec | 60 kPa | 3 |
| 6 | 48 l/min - 0.80 l/sec | 60 kPa | 3 |

A suitable 3 speed bronze pump kit with ball valve unions to 28mm cu. can be supplied by Andrews, part no.B249 (see Fig No. 14)



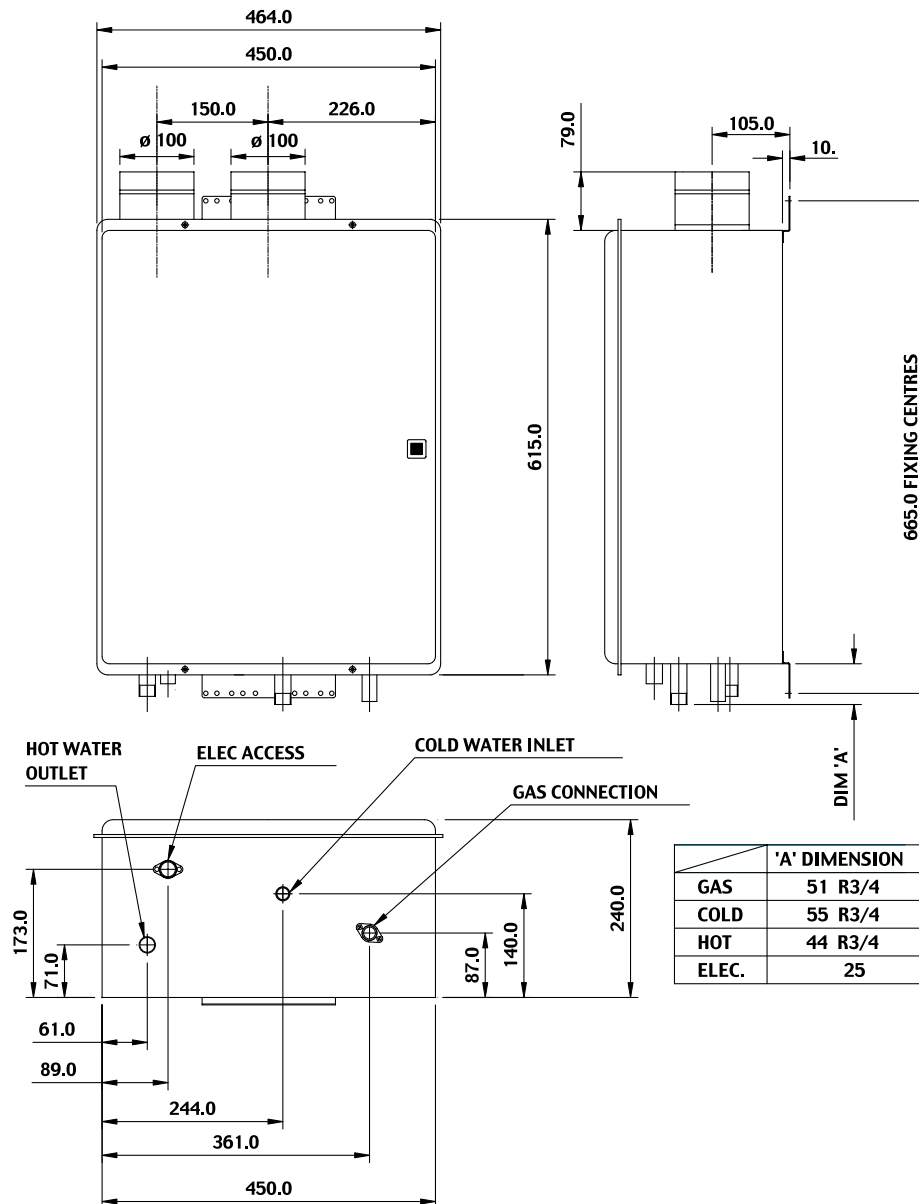
**Fig No.14**

**Pump Curves for Andrews 3 Speed Bronze Circulating Pump. Part No.B249**



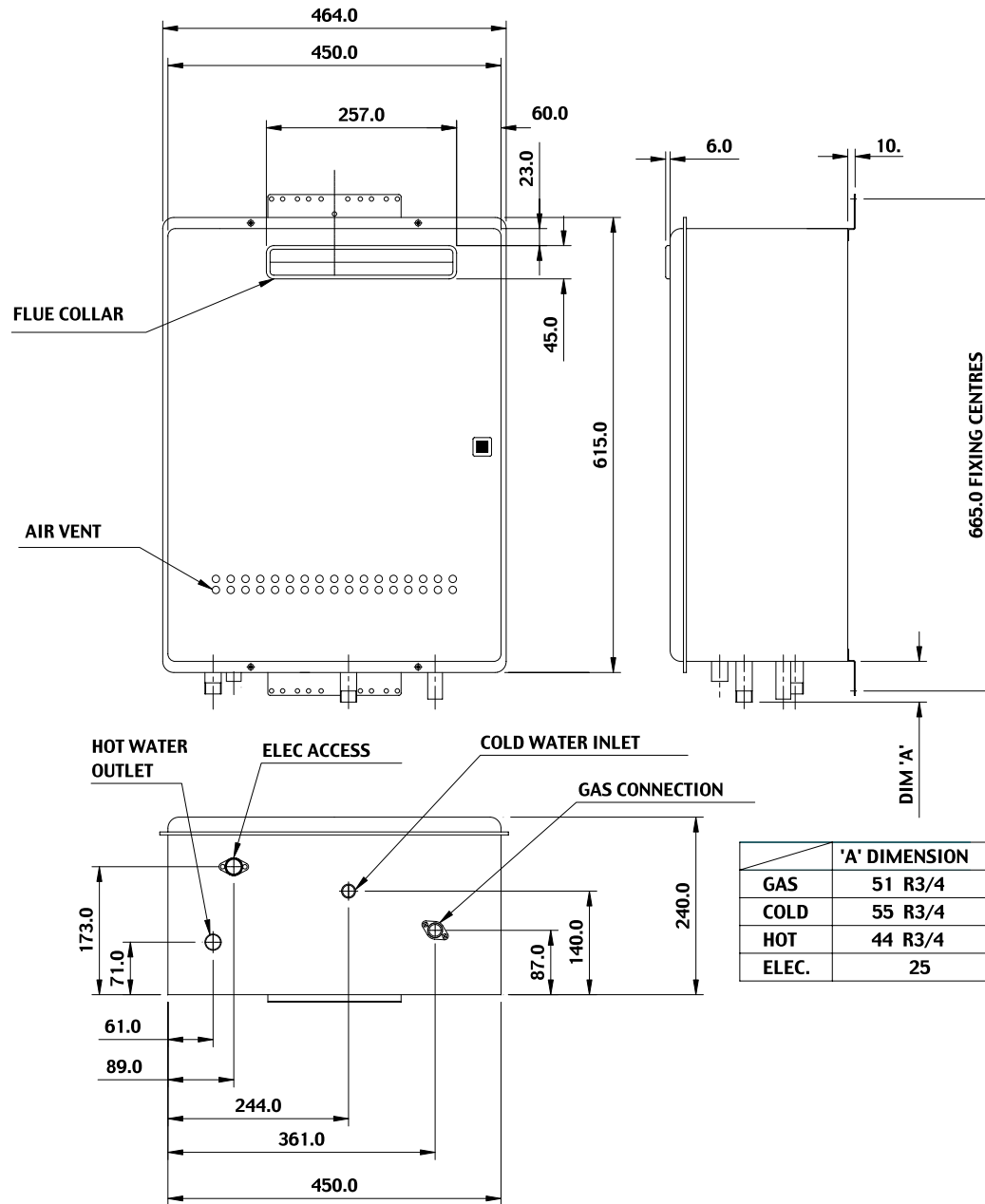
# Fig No.15

## Dimensions WH42/LWH42/WH56 and LWH56



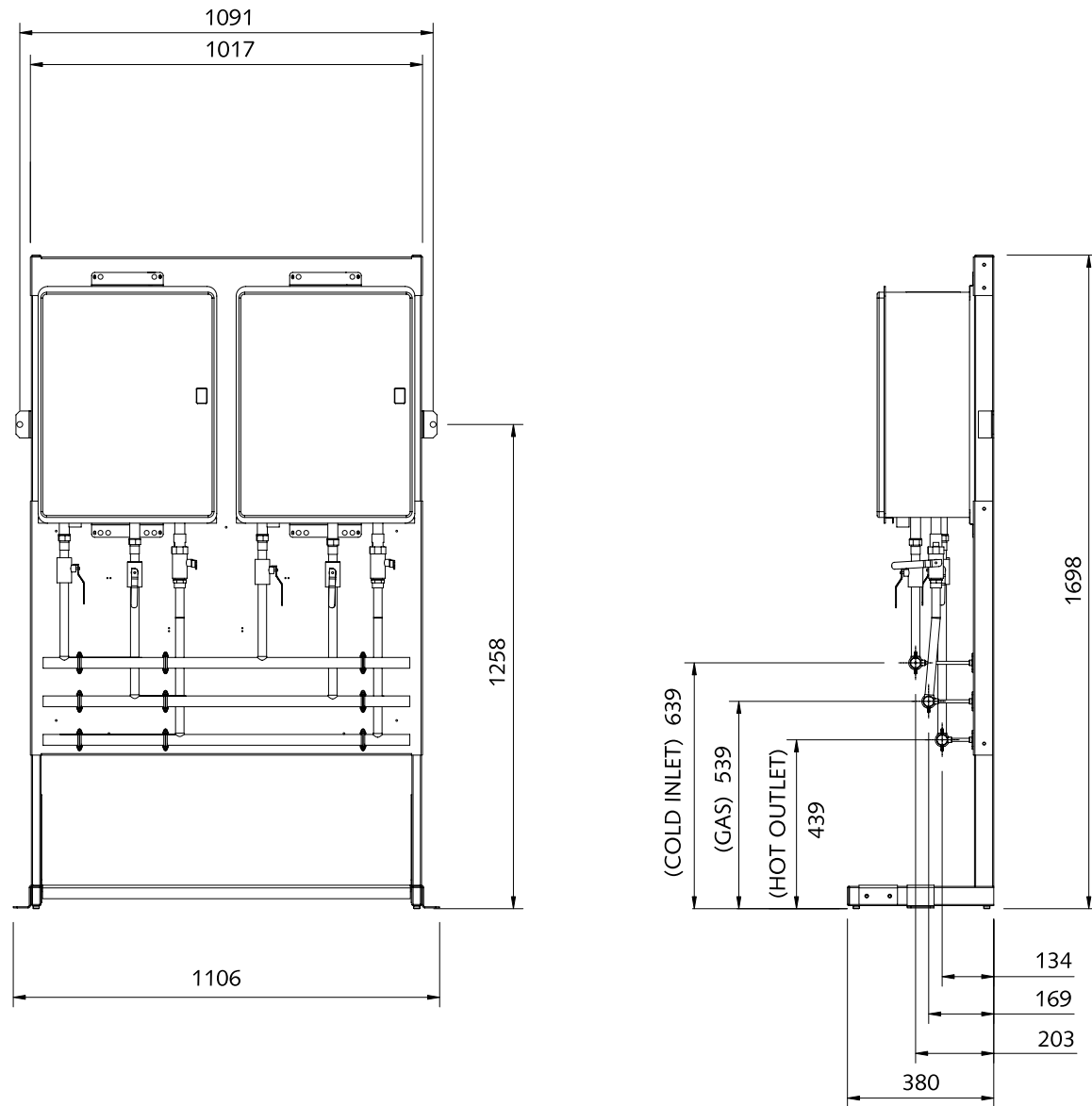
# Fig No.16

## Dimensions WHX56 and LWHX56



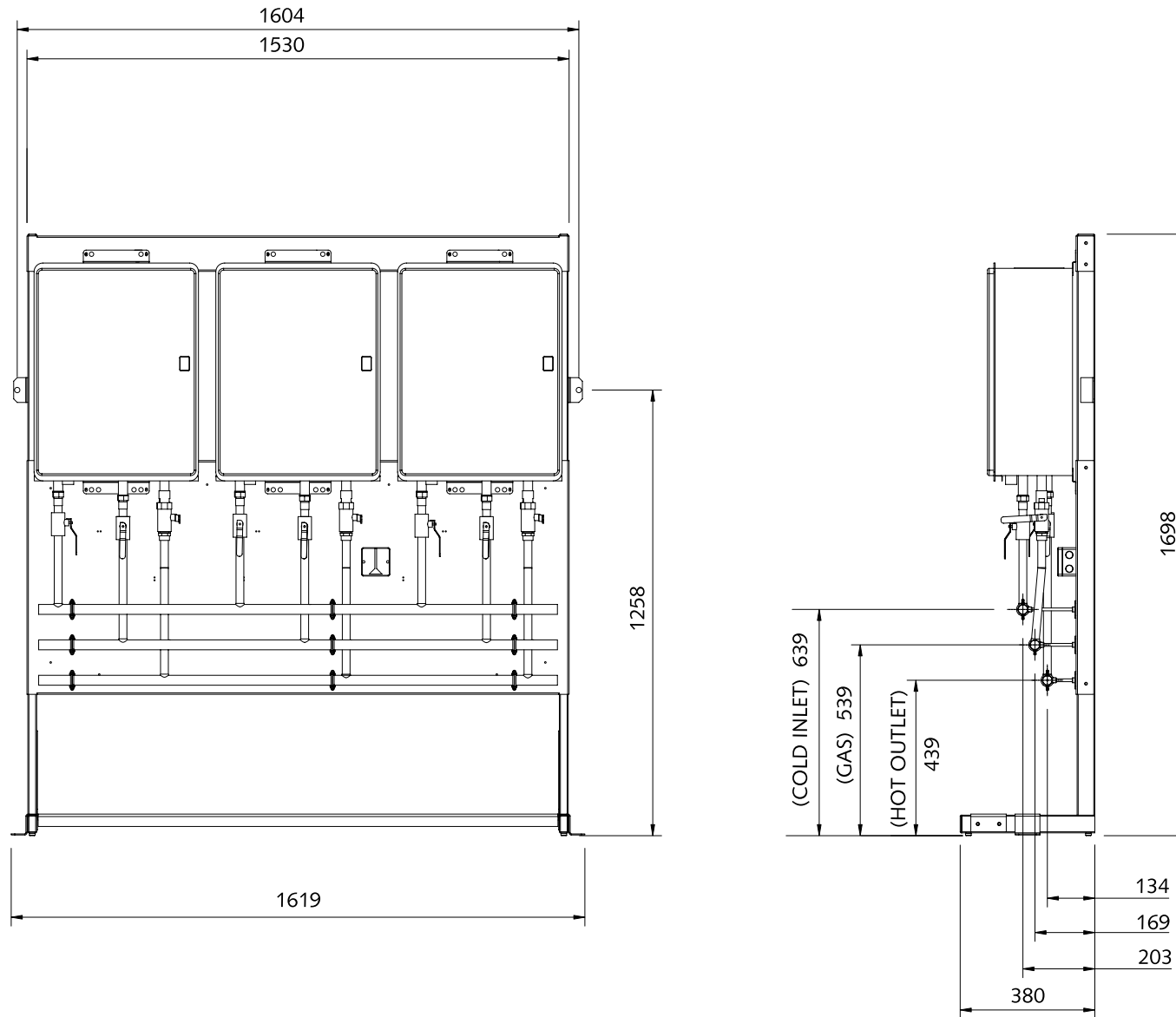
**Fig No.17**

**WH42, LWH42, WH56 and LWH56 Pre-assembled dual manifold unit dimensions**



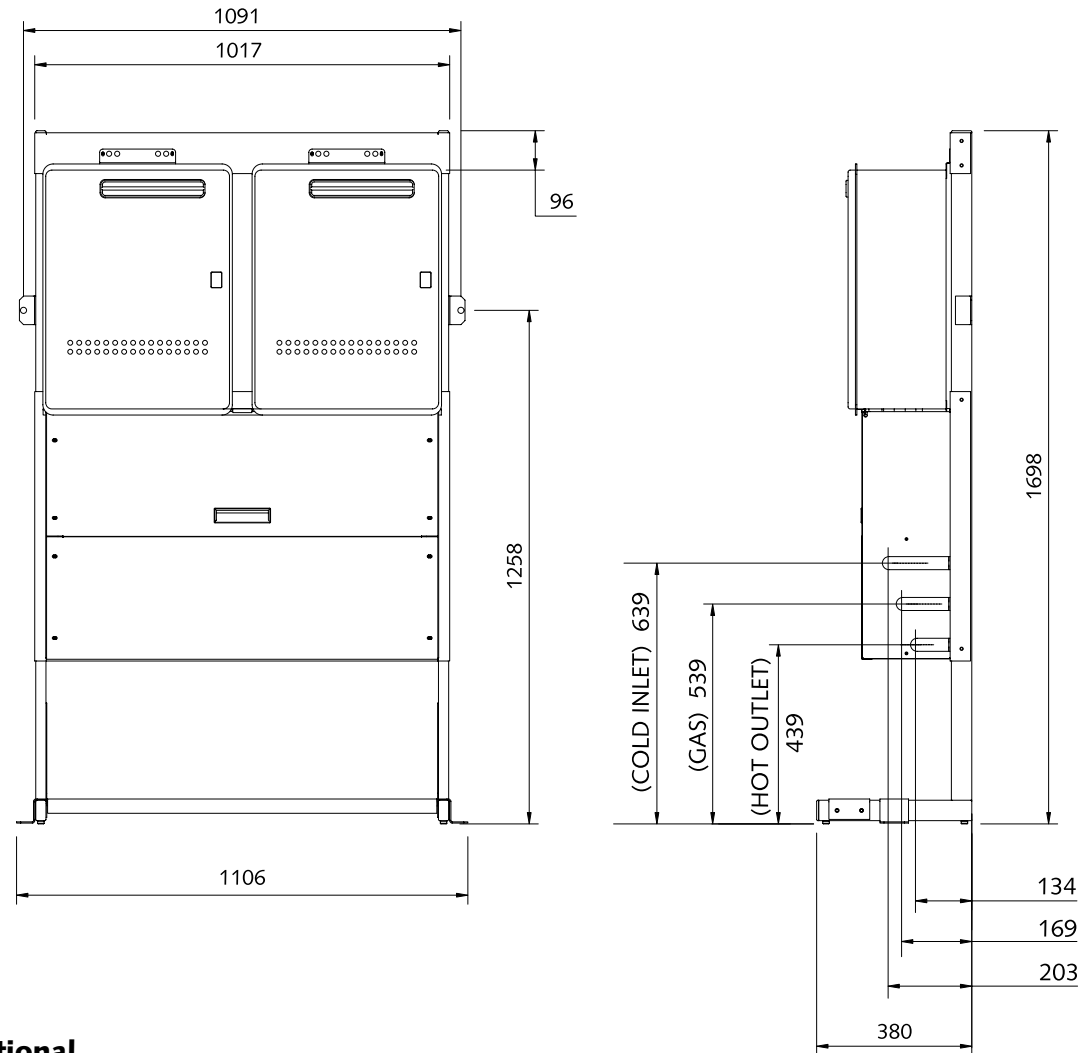
**Fig No.18**

**WH42, LWH42, WH56 and LWH56 Pre-assembled triple manifold unit dimensions**



**Fig No.19**

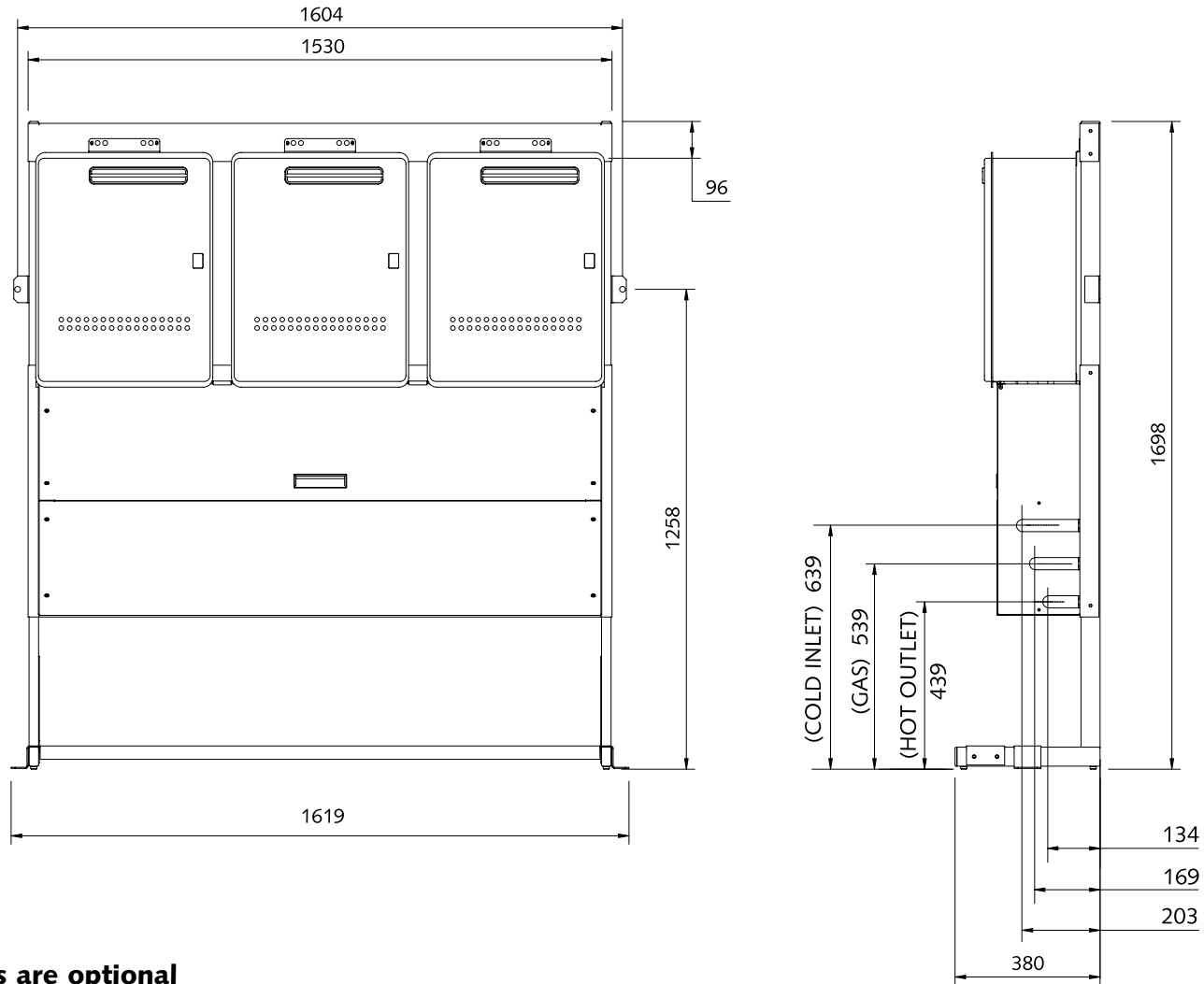
**WHX56 and LWHX56 Pre-assembled dual manifold unit dimensions**



**Note: Pipework covers are optional**

**Fig No.20**

**WHX56 and LWHX56 Pre-assembled triple manifold unit dimensions**



**Note: Pipework covers are optional**

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